

**Type P Instrument Triads Signal Cable Overall Shield AL/PS tape (0.6/1kV)
Flame Retardant**



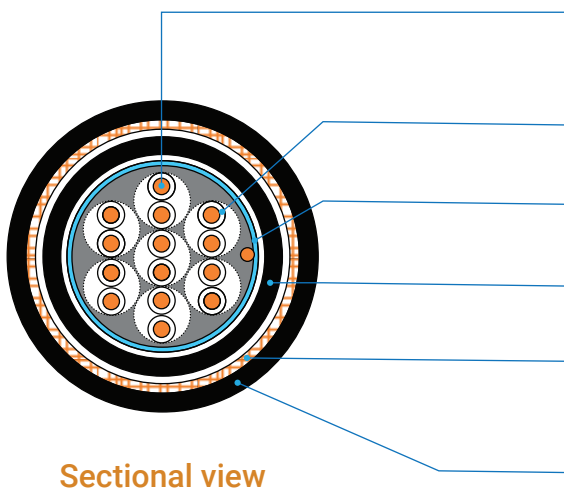
CABLE DESIGNATION

0.6/1kV TT(OS)PN, TT(OS)PNB, TT(OS)PNBS

APPLICATION STANDARD

Design guide	IEEE 1580(2010) , UL 1309(2017)
Insulation material	IEEE 1580, Type P UL 1309, X110
Sheath material	IEEE 1580, Type N
Flame retardant	IEEE 1202 & IEC 60332-3 Category A
Fire resistance	IEC 60331-2I(90min), IEC 60331-1,-2(120min), FS-type only
Cold bend / impact	CSA C22.2 NO. 2556(-40°C/-40°C) (Formerly CSA C22.2 NO.0.3)

CONSTRUCTION



Conductor

- Flexible stranded tinned annealed copper wires as per IEEE 1580
- A suitable separator tape(s) may be applied over the conductor

Insulation

XLPO (Type P) as per IEEE 1580 & XLPO (X110) as per UL 1309

Overall shield

Polyester/aluminum tape (AL/PS tape) + Tinned copper drain wire

Jacket

Thermosetting Neoprene (Type N) as per IEEE 1580 & UL 1309

Aarmor

- Braid of commercial bronze wires
- A suitable separator tape(s) may be applied under / over the armor

Sheath

- Thermosetting Neoprene (Type N) as per IEEE 1580 & UL 1309
- Outer sheath color : Black

Twisting

Two/Three Insulated cores shall be twisted together to form a pair / triad

Fire resisting layer(optional)

Mica/glass tape (FS Type cable only)

Cabling

- Twisted pairs/triads shall be cabled
- Flame retardant & non-hygroscopic fillers may be used
- Suitable tape(s) may be applied on the cabled core
- A Filler may be applied to obtain a circular Cable

Core identification

Colored insulation plus

Arabic number printing on the insulation

Each core color : pair _ Black, White(or Red)

triad _ Black, White, Red

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No. of Triads	Conductor		Thickness of Insulation	Thickness of Jacket	Thickness of Sheath	Unarmor		Armor		Armor and Sheath	
	Nominal Area					Nom.Dia. Approx.	Weight Approx.	Nom.Dia. Approx.	Weight Approx.	Nom.Dia. Approx.	Weight Approx.
No.	AWG or kcmil	mm/inch	mm/inch	mm/inch	mm/inch	kg/km	mm/inch	kg/km	mm/inch	kg/km	
1 T	18	0.76/0.030	1.14 / 0.045	1.52 / 0.060	9.2 / 0.362	120	11.0 / 0.433	220	14.4 / 0.567	320	
2T			1.52 / 0.060	1.52 / 0.060	14.9 / 0.587	250	16.7 / 0.657	410	20.1 / 0.791	560	
3T			1.52 / 0.060	1.52 / 0.060	15.8 / 0.622	310	17.6 / 0.693	470	21.0 / 0.827	630	
4T			1.52 / 0.060	2.03 / 0.080	17.3 / 0.681	380	19.1 / 0.752	550	23.6 / 0.929	780	
5T			1.52 / 0.060	2.03 / 0.080	19.0 / 0.748	450	20.8 / 0.819	650	25.3 / 0.996	890	
7T			2.03 / 0.080	2.03 / 0.080	22.5 / 0.886	640	24.3 / 0.957	870	28.8 / 1.134	1,150	
8T			2.03 / 0.080	2.03 / 0.080	24.0 / 0.945	720	25.8 / 1.016	960	30.3 / 1.193	1,260	
12T			2.03 / 0.080	2.03 / 0.080	28.6 / 1.126	1,000	30.4 / 1.197	1,290	34.9 / 1.374	1,640	
16T			2.03 / 0.080	2.03 / 0.080	31.6 / 1.244	1,250	33.4 / 1.315	1,570	37.9 / 1.492	1,950	
1 T	16	0.76/0.030	1.14 / 0.045	1.52 / 0.060	9.6 / 0.378	140	11.4 / 0.449	240	14.8 / 0.583	350	
2T			1.52 / 0.060	1.52 / 0.060	15.5 / 0.610	290	17.3 / 0.681	450	20.7 / 0.815	600	
3T			1.52 / 0.060	2.03 / 0.080	16.5 / 0.650	360	18.3 / 0.720	530	22.8 / 0.898	750	
4T			1.52 / 0.060	2.03 / 0.080	18.0 / 0.709	430	19.8 / 0.780	620	24.3 / 0.957	850	
5T			1.52 / 0.060	2.03 / 0.080	19.9 / 0.783	520	21.7 / 0.854	730	26.2 / 1.031	980	
7T			2.03 / 0.080	2.03 / 0.080	23.6 / 0.929	740	25.4 / 1.000	980	29.9 / 1.177	1,280	
8T			2.03 / 0.080	2.03 / 0.080	25.2 / 0.992	830	27.0 / 1.063	1,090	31.5 / 1.240	1,400	
12T			2.03 / 0.080	2.03 / 0.080	30.0 / 1.181	1,170	31.8 / 1.252	1,470	36.3 / 1.429	1,840	
16T			2.03 / 0.080	2.03 / 0.080	33.1 / 1.303	1,470	34.9 / 1.374	1,800	39.4 / 1.551	2,200	
1 T	14	0.76/0.030	1.14 / 0.045	1.52 / 0.060	10.4 / 0.409	180	12.2 / 0.480	290	15.6 / 0.614	400	
2T			1.52 / 0.060	2.03 / 0.080	16.9 / 0.665	360	18.7 / 0.736	540	23.2 / 0.913	760	
3T			1.52 / 0.060	2.03 / 0.080	17.9 / 0.705	460	19.7 / 0.776	640	24.2 / 0.953	870	
4T			1.52 / 0.060	2.03 / 0.080	19.7 / 0.776	560	21.5 / 0.846	770	26.0 / 1.024	1,020	
5T			2.03 / 0.080	2.03 / 0.080	22.9 / 0.902	740	24.7 / 0.972	970	29.2 / 1.150	1,260	
7T			2.03 / 0.080	2.03 / 0.080	25.8 / 1.016	960	27.6 / 1.087	1,220	32.1 / 1.264	1,540	
8T			2.03 / 0.080	2.03 / 0.080	27.6 / 1.087	1,080	29.4 / 1.157	1,360	33.9 / 1.335	1,700	
12T			2.03 / 0.080	2.03 / 0.080	32.9 / 1.295	1,530	34.7 / 1.366	1,870	39.2 / 1.543	2,260	
16T			2.03 / 0.080	2.79 / 0.110	36.4 / 1.433	1,940	38.2 / 1.504	2,310	44.2 / 1.740	2,890	

Note. For outer diameter, it is applied to ±5% manufacturing tolerance.